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127

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/323,628 06/01/99 KITCH

K 791-052

EXAMINER

025191
BURR & BROWN
PO BOX 7068
SYRACUSE NY 13261-7068

IM52/1010

SORKIN, D ART UNIT	PAPER NUMBER
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1723
DATE MAILED:

13
10/10/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/323,628

Applicant(s)

KITOH, KENSHIN

Examiner

David L. Sorkin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 13 & 14.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Continued Prosecution Application

1. The request filed on 24 July 2001 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/323,628 is acceptable and a CPA has been established. An action on the CPA follows.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 3-6, 8-10, 12-14, 16, 18, 20 and 22-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Claims 4, 6 and 24 are rejected as incomplete because they depend from a canceled claim, claim 2.
5. It is unclear what the term "total cross-sectional area", recited throughout the claims, means. Does this refer to the total of all the cross-sectional areas of all the tabs, or does "total cross-sectional area" just mean the cross-sectional area of a tab.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 1 and 3-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 10-172534 in view of Gauthier et al. (US 6,099,986). Regarding claim 1, JP 10-172534 discloses a lithium secondary battery, comprising an internal electrode body including a positive electrode (1), a negative electrode (2) and a separator (3) the positive electrode and negative electrode being wound with the separator so that the positive electrode and the negative electrode are prevented by the separator from coming into direct contact with each other; at least a plurality of tabs (4,5) connected to each of the positive and negative electrodes for current collecting. Regarding the limitation "so that the tabs connected to each of the positive and negative electrodes may not fuse when at least 100 A current flows through the lithium secondary battery", claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function (*Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959)). Also, it has been held that "apparatus claims cover what a device *is*, not what a device *does*" ((emphasis in original) *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990)). Furthermore, it is the examiner's position, based purely upon the laws of physics, that *any* conductor "may not fuse when at least 100A" flows through it, given that the time of such flow is sufficiently brief. Current has no direct relationship to with whether or not a conductor fuses. Current relates only to the *rate* at which energy is added to the conducted. Time must also be considered, as well as the rate at which energy is dissipated as heat, through thermal conduction, convection and radiation. Regarding the "material used for the tabs" limitation, JP 10-172534 discloses aluminum and copper tabs (see col. 5, lines 22-

40). Regarding the "having a total cross-sectional area of not less than..." limitation, JP 10-172534 discloses 100 microns and 70 microns as examples of tab thickness (see col. 5, lines 22-29). These thickness values are greater than any of the examples of the instant application, which range from 10-50 microns. This tends to suggest, but does not prove, that the cross-sectional areas of JP 10-172534 are within the claimed range. It is considered that it would have been obvious to one of ordinary skill in the art to have optimized the cross-sectional areas of the tabs to suit a particular situation according to the intend use of being a fuse describe in the English language abstract of JP 10-172534. The required statement of relevance provided by the applicant with the IDS does not indicate that JP 10-172534 discloses an organic electrolyte. Gauthier ('986) teaches that an organic electrolyte is suitable for a lithium battery (see col. 4, lines 35-40). Therefore, it is considered that it would have been obvious to one of ordinary skill in the art to have included an organic electrolyte in the battery of JP 10-172534 to provide a suitable electrolyte as taught by Gauthier ('986). Regarding claim 7, JP 10-172534 discloses a lithium secondary battery, comprising an internal electrode body including a positive electrode (1), a negative electrode (2) and a separator (3) the positive electrode and negative electrode being wound with the separator so that the positive electrode and the negative electrode are prevented by the separator from coming into direct contact with each other; at least a plurality of tabs (4,5) connected to each of the positive and negative electrodes for current collecting, wherein the tabs function as current fuses to become nonconductive in the event that a condition arises during discharge of the battery in which sufficient current to damage one or more

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components of the battery is provided (see English language abstract). The required statement of relevance provided by the applicant with the IDS does not indicate that JP 10-172534 discloses an organic electrolyte. Gauthier ('986) teaches that an organic electrolyte is suitable for a lithium battery (see col. 4, lines 35-40). Therefore, it is considered that it would have been obvious to one of ordinary skill in the art to have included an organic electrolyte in the battery of JP 10-172534 to provide a suitable electrolyte as taught by Gauthier ('986). Regarding claims 3, 4, 8, 9, 12, 13, and 22-27, while the claimed tab sized are not disclosed by JP 10-172534, it is considered that it would have been obvious to one of ordinary skill in the art to have optimized the size of the tabs to suit a particular situation. It has been held that differences in size or relative dimensions is not sufficient to distinguish a claimed device from the prior. See *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955) and *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 830, 225 USPQ 232 (1984). Regarding claims 5 and 6, it is considered that it would have been obvious to one of ordinary skill in the art to have made the resistant value of the tabs below 1 milliohm to maximize efficiency of the battery. Regarding claims 10 and 11, it is considered that it would have been obvious to one of ordinary skill in the art to have made the internal resistance below 10 milliohms to maximize efficiency of the battery. Regarding claims 14 and 15, it is considered that it would have been obvious to one of ordinary skill in the art to have made the deviation of resistance values of the tabs from an average value be low to achieve a product that performs reproducibly as expected. Regarding claims 16 and 17 the battery further including positive and negative terminals

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(8), however, it is not clear how the tabs are attached. Gauthier ('986) teaches that welding is a suitable means of attaching tabs in a battery (see col. 3, lines 27-23). It is considered that it would have been obvious to one of ordinary skill in the art to have attached the tabs by means of welding as taught by Gauthier ('986) to obtain a secure construction. Regarding claims 18 and 19 it is considered that it would have been obvious to one of ordinary skill in the art to have optimized the capacity of the battery to suit a particular intended use. Claims 20 and 21 fail to further structurally limit the claimed battery, because it merely stipulates an intended use.

8. Claims 1 and 3-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fradin (US 6,071,638) in view of Gauthier et al. (US 6,099,986). Regarding claim 1, Fradin ('638) discloses a lithium secondary battery, comprising an internal electrode body including a positive electrode (12), a negative electrode (11) and a separator (see col. 5, lines 24-31) the positive electrode and negative electrode being wound with the separator so that the positive electrode and the negative electrode are prevented by the separator from coming into direct contact with each other; at least a plurality of tabs (4) connected to each of the positive and negative electrodes for current collecting. Regarding the limitation "so that the tabs connected to each of the positive and negative electrodes may not fuse when at least 100 A current flows through the lithium secondary battery", claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function (*Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959)). Also, it has been held that "apparatus claims cover what a device *is*, not what a device *does*" ((emphasis in original) *Hewlett-Packard Co. v. Bausch &*

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Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990)).

Furthermore, it is the examiner's position, based purely upon the laws of physics, that any conductor "may not fuse when at least 100A" flows through it, given that the time of such flow is sufficiently brief. Current has no direct relationship to with whether or not a conductor fuses. Current relates only to the *rate* at which energy is added to the conducted. Time must also be considered, as well as the rate at which energy is dissipated as heat, through thermal conduction, convection and radiation. Regarding the "material used for the tabs" limitation, Fradin ('638) discloses aluminum, nickel, and copper tabs (see col. 9, lines 1-3 and col. 10, lines 8-11). Regarding the "having a total cross-sectional area of not less than..." limitation, Fradin ('638) discloses 50-200 microns as examples a preferred range of tab thickness (see col. 9, lines 1-5 and col. 10, lines 8-12). These thickness values are greater than the examples of the instant application, which range from 10-50 microns. This tends to suggest, but does not prove, that the cross-sectional areas of Fradin ('638) are within the claimed range. It is considered that it would have been obvious to one of ordinary skill in the art to have optimized the size of the tabs to suit a particular situation. It has been held that differences in size or relative dimensions is not sufficient to distinguish a claimed device from the prior. See *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955) and *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 830, 225 USPQ 232 (1984). Fradin ('638) fails to disclose an organic electrolyte. Gauthier ('986) teaches that an organic electrolyte is suitable for a lithium battery (see col. 4, lines 35-40). Therefore, it is considered that it would have been

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obvious to one of ordinary skill in the art to have included an organic electrolyte in the battery of Fradin ('638) to provide a suitable electrolyte as taught by Gauthier ('986). Regarding claim 7, Fradin ('638) discloses a lithium secondary battery, comprising an internal electrode body including a positive electrode (12), a negative electrode (11) and a separator (see col. 5, lines 24-31) the positive electrode and negative electrode being wound with the separator so that the positive electrode and the negative electrode are prevented by the separator from coming into direct contact with each other; at least a plurality of tabs (4) connected to each of the positive and negative electrodes for collecting current. Regarding the limitation "wherein the tabs function as...", it has been held that "apparatus claims cover what a device *is*, not what a device *does*" ((emphasis in original) *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990)) and that a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" (*Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987)). Therefore, the cited limitation fails to distinguish the claimed battery from the prior art. Fradin ('638) fails to disclose an organic electrolyte. Gauthier ('986) teaches that an organic electrolyte is suitable for a lithium battery (see col. 4, lines 35-40). Therefore, it is considered that it would have been obvious to one of ordinary skill in the art to have included an organic electrolyte in the battery of Fradin ('638) to provide a suitable electrolyte as taught by Gauthier ('986). Regarding claims 3, 4, 8, 9, 12, 13, and 22-27, while the claimed tab sized are not disclosed by Fradin ('638), it is considered that it would have been obvious to one of ordinary skill in the art

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to have optimized the size of the tabs to suit a particular situation. It has been held that differences in size or relative dimensions is not sufficient to distinguish a claimed device from the prior. See *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955) and *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 830, 225 USPQ 232 (1984). Regarding claims 5 and 6, it is considered that it would have been obvious to one of ordinary skill in the art to have made the resistant value of the tabs below 1 milliohm to maximize efficiency of the battery. Regarding claims 10 and 11, it is considered that it would have been obvious to one of ordinary skill in the art to have made the internal resistance below 10 milliohms to maximize efficiency of the battery. Regarding claims 14 and 15, it is considered that it would have been obvious to one of ordinary skill in the art to have made the deviation of resistance values of the tabs from an average value be low to achieve a product that performs reproducibly as expected. Regarding claims 16 and 17, positive and negative terminals (32,37) are disclosed and welding is disclosed as the preferred means of attachment (see col. 5, lines 56-59). Regarding claims 18 and 19, the battery capacity is not less than 5 Ah (see col. 3, line 37). Claims 20 and 21 fails to further structurally limit the claimed battery, because it merely stipulates an intended use.

Response to Arguments

9. The examiner acknowledges applicant's statement on the record in paper No. 12, filed 24 July 2001, that in the claims the phrase "at least a plurality of tabs connected to the positive and negative electrodes" requires at least two tabs attached to the positive

electrode and at least two tabs attached to the negative electrode. The examiner now considers the scope of the claims to be limited according to this statement.

10. Applicant's arguments have been considered but are moot in view of the new grounds of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Sorkin whose telephone number is 703-308-1121. The examiner can normally be reached on 7:30 - 5:00 Mon.-Thur., Alternate Fridays.

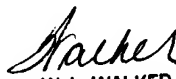
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 703-308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



David Sorkin

October 5, 2001



W. L. WALKER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700